

AD-A260 759

①



US Army Corps
of Engineers

Rock Island District

DES MOINES RECREATIONAL RIVER
AND GREENBELT

OPERATIONS AND MAINTENANCE
MANUAL

DTIC
ELECTE
MAR 01 1993
S E D

Greenbelt Trail System
Lutheran Hospital
Bicycle Trail Segment



412230

93-04099



4698

98

2 25 12

NOVEMBER 1991

REVISED NOVEMBER 1992

DISTRIBUTION STATEMENT

Approved for public release
Distribution Unlimited



DEPARTMENT OF THE ARMY
ROCK ISLAND DISTRICT, CORPS OF ENGINEERS
CLOCK TOWER BUILDING - P O BOX 2004
ROCK ISLAND, ILLINOIS 61204-2004

November 25, 1992

Engineering Division
General Engineering Section

SEE REPORT DISTRIBUTION LIST (APPENDIX C)

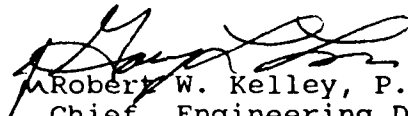
Please find enclosed the final approved Operation and Maintenance Manual for the Lutheran Hospital Bicycle Trail Segment, Des Moines Recreational River and Greenbelt, Des Moines River, Des Moines, Iowa.

The annual inspection of this completed work will be a joint inspection between the Corps of Engineers (COE) and the City of Des Moines (City). Points-of-contact are as follows:

- a. COE: Ms. Donna Jones, CENC-RD-SI, (309) 788-6361, extension 6371. [Coordinator and office of inspection files.]
- b. COE: Mr. Jerry DeMarce, CENC-RD-RS, (515) 276-4656. [Saylorville Lake staff will perform the inspection with City.]
- c. City: Mr. Don Tripp, Director, City of Des Moines Parks and Recreation, (515) 237-1386.

Questions regarding this document should be directed to Mr. Perry Hubert, Project Engineer, telephone (309) 788-6361, extension 6554.

Sincerely,


Robert W. Kelley, P.E.
Chief, Engineering Division

Enclosure (3 cpys)



DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
111 NORTH CANAL STREET
CHICAGO, ILLINOIS 60606-7206

REPLY TO
ATTENTION OF:

CENCD-CO-MO (5)

DEC 9 1991

MEMORANDUM FOR Commander, Rock Island District,
ATTN: CENCR-ED-DG/Hubert

SUBJECT: O & M Manual, Greenbelt Trail System, Lutheran
Hospital Bicycle Trail Segment

1. The O & M manual is approved with the provision that the year 1989 in the second line of paragraph a.(1) on page 2 is corrected to 1985.
2. Two copies of the final O & M manual are to be furnished to this office, ATTN: CENCD-CO-O.
3. The HQ, NCD, POC is C. Reuter at (312) 353-6375.

FOR THE COMMANDER:

Carl C. Cable
CARL C. CABLE, P.E.
Director, Directorate of
Construction and Operations

Accession For	
NTIS CRA&I	X
DTIC TAB	
Unannounced	
Justification	
<i>per form 52</i>	
By	
Distribution	
Availability	
Dist	
A-1	

OPERATIONS AND MAINTENANCE MANUAL
DES MOINES RECREATIONAL RIVER AND GREENBELT
LUTHERAN HOSPITAL
BICYCLE TRAIL SEGMENT
DES MOINES, IOWA

TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
1. INTRODUCTION	
a. Purpose and Scope	1
b. Use of Manual	1
2. HISTORICAL SUMMARY	
a. Authorization and Location	2
b. Planning and Construction Activities	2
c. Actual Project Costs	2
d. Project References	3
3. DESCRIPTION OF PROJECT FEATURES	
a. Project Description	4
b. Project Features	4
1. Concrete Bicycle Trail with Guardrail	4
2. Timber Bicycle Trail and Observation Deck	4
3. Trail Abutments	4
4. Regraded Hillside	4
4. INSPECTIONS	
a. General	4
b. Project Inspection by Site Manager	5
c. Joint Inspection by Site Manager and Corps of Engineers	5
5. OPERATIONS AND MAINTENANCE OF PROJECT FEATURES	
a. General	5
b. Concrete Bicycle Trail with Guardrail	6
c. Timber Bicycle Trail and Observation Deck	6
d. Trail Abutments	7
e. Regraded Hillside	7

TABLE OF CONTENTS (Cont'd)

List of Tables

<u>No.</u>	<u>Title</u>	<u>Page</u>
2-1	Actual Project Costs	2
2-2	Summary of Cost Apportionment	3
2-3	Project References	3

Appendices

- A. Local Cooperation Agreement
- B. Site Manager's Project Inspection Checklist
- C. Distribution List
- D. Plates

List of Contract Drawings

<u>Sheet</u>	<u>Reference</u>	<u>Title</u>
<u>Number</u>	<u>Number</u>	
1	X-1	Vicinity Map, Location Plan and Index
2	C-1	Boring Logs
3	C-2	Site Plan
4	C-3	Observation Deck Details
5	S-1	Foundation Plan and Details
6	S-2	Framing Details

OPERATION AND MAINTENANCE MANUAL
DES MOINES RECREATION RIVER AND GREENBELT
LUTHERAN HOSPITAL
BICYCLE TRAIL SEGMENT
DES MOINES, IOWA

SECTION 1

INTRODUCTION

a. Purpose and Scope.

(1) This manual has been prepared to serve as a guide for the operation and maintenance of the Lutheran Hospital Bicycle Trail Segment. Operations and maintenance instructions for the major features of the project are presented. This manual has been written for project and management personnel familiar with the project and does not contain detailed information which is common to site personnel or which is presented in other existing manuals or regulations.

(2) The intent of the operating instructions is to provide information which allows orderly and efficient use of the constructed features. The intent of the maintenance instructions is to present preventative maintenance information consisting of systematic inspections and subsequent corrective actions which should ensure long-term utilization of equipment and features. A timely preventative maintenance program reduces and virtually eliminates breakdown of essential equipment and prevents major damage to constructed features by early corrective action.

(3) This manual provides the general standards of maintenance and establishes an initial frequency of maintenance inspections which should ensure satisfactory project performance. Deviation from the inspection frequencies is permissible as conditions warrant based on experience at the project and similar equipment at comparable projects.

b. Use of Manual

(1) This manual is divided into the following sections: Section 2: Historical Summary; Section 3: Description of Project Features; Section 4: Inspections; and Section 5: Operation and Maintenance of Project Features. Sections 2 and 3 present historical summaries and descriptions of actual features constructed for this project. Section 4 presents project inspection procedures and Section 5 presents operation and maintenance instructions for each project feature.

(2) The attached drawings comprise the complete set of construction contract drawings. Complete as-built plans will be distributed for inclusion in this manual when they become available.

SECTION 2

HISTORICAL SUMMARY

a. Authorization and Location.

(1) The Des Moines Recreational River and Greenbelt (hereinafter referred to as the Greenbelt) was authorized on August 15, 1985, by Public Law 99-88, the 1985 Supplemental Appropriations Act. Additional Greenbelt legislation is contained in Section 102 of Public Law 99-500, Fiscal Year 1987 Continuing Resolution Act, and Section 604 of Public Law 99-662, the Water Resources Development Act of 1986.

(2) The project is located in section 35, T.79N., R.24W., Polk County, Iowa, on a slope overlooking the east bank of the Des Moines River, west of Iowa Lutheran Hospital (see plate 1). The site is situated on property which is owned by Iowa Lutheran Hospital. The City of Des Moines has been provided a 30 foot wide easement through the Lutheran Hospital site for construction and maintenance of a bicycle trail.

b. Planning and Construction Activities.

The project was designed by the Rock Island District, Corps of Engineers. Design considerations are presented in the Feature Design Memorandum number 4, dated March 1990. The construction contract was supervised by the Corps of Engineers, Rock Island District.

c. Actual Project Costs. The actual cost of the project is presented in Table 2-1 with a summary of cost apportionment presented in Table 2.2.

TABLE 2-1
ACTUAL PROJECT COSTS

14. Recreational Facilities

<u>Item</u>	<u>Description</u>	<u>Actual Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
1	Remove Existing Concrete Bike Trail	1	LS	XXXXXXXXXX	\$ 1,000.00
2	Remove Existing Steel Railing	1	LS	XXXXXXXXXX	600.00
3	Elevated Timber Bike Trail Structure	1	LS	XXXXXXXXXX	103,161.00
4	Granular Base Course	44	TN	25.00	1,101.00
5	Concrete Bike Trail	189.5	SY	30.00	5,685.00
6	Steel Railing	208	LF	40.00	8,320.00
7	Regrade Slumped Hillside	785	CY	10.00	7,850.00
8	Seeding				
8AA	Regraded Slumped Area	1,707	SY	2.00	3,414.00
8AB	Other Disturbed Areas	1	LS	XXXXXXXXXX	1,500.00
9	Barrier Between Guardrails	1	LS	XXXXXXXXXX	100.00
				TOTAL	\$ 132,731.00
10	Iowa Tax Credit (estimated refund)		LS	XXXXXXXXXX	-1,864.41
	TOTAL RECREATION FACILITIES				\$ 130,866.59

TABLE 2-2

SUMMARY OF COST APPORTIONMENT

	<u>ITEM</u>	<u>AMOUNT</u>
01.	Lands and Damages	\$ 3,900.86
14.	Recreational Facilities (from Table 2-1)	130,866.59
30.	Planning, Engineering and Design	70,090.91
31.	Construction Management	<u>20,257.86</u>
	TOTAL PROJECT COSTS	\$ 225,116.22
	Local Sponsor's share (50%)	\$ 112,558.11
	Federal Share (50%)	\$ 112,558.11

d. Project References. Table 2-3 provides a summary of related project references.

TABLE 2-3
PROJECT REFERENCES

<u>Title</u>	<u>Date</u>	<u>Purpose</u>
Feature Design Memorandum (FDM), No. 4, Lutheran Hospital Bicycle Trail Segment	Mar 90	Provides planning, engineering, and sufficient construction details of the selected plan for project approval purposes.
Local Cooperation Agreement (LCA)	28 Mar 91	Provides cost-sharing requirements between the Department of the Army and Des Moines, Iowa.
Construction As-Builts	*	Provides as-built construction drawings.
Manufacturer's Data (Shop Drawings)	*	Provides detailed opera- tion and maintenance instructions for specific pieces of equipment as recommended by the manufacturer.

* To be distributed when available.

SECTION 3

DESCRIPTION OF PROJECT FEATURES

a. Project Description.

Description: The project involves construction of approximately 500 feet of bike trail. The trail will link the two ends of the existing bike trail shown on the site plan (sheet 3). The new trail will cross a historic slope failure area. This area has been stabilized with a system of deep subsurface drains and has remained stable since their installation in 1984.

b. Project Features.

(1) Concrete Bicycle Trail with Guardrail: As shown on the site plan, approximately 140 feet of the existing concrete bike trail at the south end of the project was removed and resurfaced with concrete. The railing along this 140 foot segment was removed and replaced. An additional 80 feet of new concrete bike trail with 68 feet of new guardrail was installed at the north end of the project.

(2) Timber Bicycle Trail and Observation Deck: An elevated timber trestle structure and observation deck was constructed across the remaining 300 feet of the project area. These sections also include timber guardrails.

(3) Trail Abutments: Timber abutments were constructed at the north and south ends of the project to provide for the transition between the at-grade concrete trail and the elevated timber trail.

(4) Regraded Hillside: An existing slump zone at the south end of the project was excavated, compacted, and seeded. Erosion mat was placed in the area. A drainage ditch was provided along the east edge of the new concrete bicycle path.

SECTION 4

INSPECTIONS

a. General.

(1) An active maintenance program is based on inspections and subsequent servicing, adjustment, or repair. The objective of inspections is to obtain a balance between inspection costs and the cost of repairs and replacements that could be avoided by timely and thorough inspections.

(2) There are 2 types of inspections for the project: (1) Project Inspection by the Site Manager and (2) Joint Inspection by the Site Manager and personnel from the Corps of Engineers, Rock Island District.

b. Project Inspection by Site Manager.

(1) The Project Inspection should be performed by the Site Manager or appropriate representative for the purpose of noting routine deficiencies and initiating corrective actions. This inspection should be performed at periods not exceeding 12 months and should follow inspection guidance presented in subsequent sections of this manual. Other Project Inspections should occur as necessary or as scheduled by the Site Manager.

(2) A Project Inspection checklist has been developed as presented in Appendix B. It is suggested that a copy of the completed checklist be furnished to the Corps of Engineers, Rock Island District, ATTN: CENCR-OD-SI, P.O. Box 2004, Rock Island, Illinois 61204-2004, immediately following each annual Project Inspection by the Site Manager.

c. Joint Inspection by Site Manager and Corps of Engineers.

A Joint Inspection by the Site Manager and the Corps of Engineers will be scheduled annually by the Corps in accordance with ER 1165-2-131. The purpose of this inspection is to assure that adequate maintenance is being performed as required by the LCA and this manual. The District Engineer or Authorized Representatives should have access to all portions of the constructed project upon coordination with the Site Manager for this purpose. Copies of this inspection will be furnished to the Site Manager stating project maintenance conditions. Corrective actions from these inspections should be accomplished by the Site Manager as provided by the LCA, reference appendix A.

SECTION 5

OPERATION AND MAINTENANCE OF PROJECT FEATURES

a. General.

(1) This section presents operation and maintenance instructions for the major project features which were designed and constructed to minimize operation and maintenance requirements.

(2) Project features should be continuously maintained and operated to obtain maximum benefits. No encroachment or trespass which will adversely affect the efficient operation or maintenance of the project should be permitted upon the constructed features. No improvement should be passed over, under, or through the constructed features, nor should any excavation or construction be permitted within these features without prior approval by the Corps of Engineers, Rock Island District. Such improvements or alterations which are desirable and permissible should be constructed in accordance with standard engineering practice. Advice regarding the effect of proposed improvements or alterations on the functioning of the project and information concerning methods of construction acceptable under standard engineering practice should be obtained from the District Engineer or if otherwise

obtained, should be submitted for approval. Drawings or prints showing improvements or alterations as finally constructed should be furnished to the District Engineer after completion of such work.

b. Concrete Bicycle Trail with Guardrail.

(1) Operation.

(a) Check concrete sidewalks for cracks, spalls, and other deterioration. Examine the condition of concrete sidewalks at joints, especially at the abutments, for signs of differential movement which could open the joint. Check sidewalk drainage for adequate carry-off. Examine the sidewalk surface for roughness or other conditions that may make walking hazardous or difficult.

(b) Inspect railings for damage caused by collision, and for weakening caused by rust or some other form of deterioration. Check for loose posts, rust, and the condition of the posts at the concrete surface. Check the vertical and horizontal alignment of railings for any indications of settlement or lateral movement. Examine all guardrails for burrs or other projections which would be hazardous to pedestrians or riders. Check the condition of all welds between sections of pipe railings.

(2) Maintenance.

(a) Make all necessary sidewalk repairs using standard procedures and the concrete mix specified in the contract specifications. Replace joint filler as required.

(b) Before applying paint to the metal railing, remove all old paint and rust down to bare metal. Apply primer and paint equal in quality to that specified in the contract specifications. Repair all post connections and welds as necessary.

c. Timber Bicycle Trail and Observation Deck.

(1) Operation.

(a) Check all timbers for signs of disintegration due to fungus decay, especially at connections, splices, support points, or around bolt or screw holes. Check for holes, cuts, scrapes, or any other breaks in the timber surface which would break the protective layers of the preservative treatment.

(b) Inspect all timbers for vermin, such as termites, powder-post beetles, or carpenter ants. Small holes, trails, and sawdust indicate the presence of vermin.

(c) Check for signs of weathering, warping, chemical damage, or fire. Wear due to abrasion is easily recognized as a loss of section at the points of wear. Check for loose, broken, or worn planks and for loose or missing bolts or screws. Observe the timber trail and observation deck under passing traffic for looseness or excessive deflection of the members.

(d) Inspect all timber railings for decay, loose or missing connections, missing or damaged rails, slivers, and any projections which would be hazardous to pedestrians.

(2) Maintenance.

Replace or repair as necessary any damaged or missing timber members, connections, or fasteners with materials at least equal in quality to those specified in the contract specifications.

d. Trail Abutments.

Operation.

(a) Check all abutment timbers, connections, and fasteners following the same procedures as previously outlined for the Timber Bicycle Trail and Observation Deck.

(b) Inspect for scour or erosion around the abutment, and for evidence of any movement (sliding, rotation, etc.), or settlement. Open or uneven joints between the sidewalk and the timber trail deck could indicate abutment movement. Check the storm drain inlet near the north abutment periodically, especially during rainy seasons, for proper drainage.

(2) Maintenance.

Repair or replace any timber members, connections, fasteners, or granular backfill material as necessary to maintain the integrity and alignment of the abutments. Materials used will be at least equal in quality to those specified in the contract specifications.

e. Regraded Hillside.

(1) Operation.

(a) The trail crosses a historic slope failure area. The area adjacent to the timber trail has been stabilized with a system of deep subsurface drains and has remained stable since their installation in 1984. The drains, observation wells, and inclinometers should be inspected in accordance with normal operating procedures, or at least semi-annually and following heavy rains, for proper operation. See paragraph (3) below.

(b) Observe all slopes, especially the slump zone indicated in the drawings, for cracks, slide scarps, fresh sloughs, and seepage. These all indicate past or imminent soil movement. Continued stability of the hillside is best indicated by the retention of the original trail alignment and integrity.

(2) Maintenance.

Maintain the subsurface drains as necessary. Regrade and reseed any sloughed areas as necessary and continue close observation of the affected areas. Provide additional drainage facilities as required.

(3) Trip Report of September 1992 Inspection.

(a) All work to regrade and seed the hillside was completed in May 1992. After heavy rains in July 1992, a slide reoccurred in the same area which had been regraded and seeded. Inspection on September 9, 1992 revealed that the slide was a series of surficial (shallow) slumps. The slumps extended from 120 feet to 230 feet downstream from the downstream end of the timber trail. The slumps extended upslope from the concrete trail to the top of the existing slope.

(b). One of the slumps had stabilized at the upslope edge of the concrete trail. Here it was noted that runoff water from recent rain had ponded next to the upslope edge of the concrete trail. This reach of slope disturbance had been dressed back during the contract construction to restore the trail, and was seeded and covered with a nylon erosion control grid. The grid was found torn in several locations from surficial soil movement.

(c) The condition of the soil surface was wet from recent rain. It appeared that rain water had found a way into cracks in the slope, causing the soil to lose shear strength and slump. The slumps are a sufficient distance from the wood timber trail so as not to jeopardize its safety and the slope adjacent to the timber trail has remained stable.

(d) It appears that some remedial work will be necessary at some time to prevent slumps from covering the concrete trail. Stairstepping the slope in benches, 12 feet wide and 3 feet tall, composed of mixed soils (mixing the natural soils with sand) may warrant consideration to other more expensive methods.

APPENDIX A
LOCAL COOPERATION AGREEMENT

Date MAR 4 1991
Agenda Item 55
Roll Call # 91-880

LOCAL COOPERATION AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CITY OF DES MOINES
FOR
RECREATIONAL DEVELOPMENT AT
THE LUTHERAN HOSPITAL BICYCLE TRAIL SEGMENT

THIS AGREEMENT, entered into this 28th day of MARCH, 1991, by and between the DEPARTMENT OF THE ARMY (hereinafter referred to as the "Government"), acting by and through the Commander, Rock Island District and the CITY OF DES MOINES, IOWA (hereinafter referred to as the "City"), acting by and through its Mayor,

WITNESSETH, THAT:

WHEREAS, The Des Moines Recreational River and Greenbelt Project (hereinafter referred to as the "Authorized Project") was authorized by the Supplemental Appropriations Act of 1985 (Public Law 99-88); and

WHEREAS, the Lutheran Hospital Bicycle Trail Segment Project (hereinafter referred to as the "Project" and described in Article I.a. herein) is a separable element of the Authorized Project; and

WHEREAS, Section 103 of the Water Resources Development Act of 1986, Public Law 99-662, as amended, specifies the cost sharing requirements applicable to the Project; and

WHEREAS, Section 221 of the Flood Control Act of 1970, Public Law 91-611, as amended, provides that the construction of any water resources project by the Secretary of the Army shall not be commenced until each non-Federal interest has entered into a written agreement to furnish its required cooperation for the Project; and

WHEREAS, the City, in order to obtain the benefits of the Project at the earliest possible date, has voluntarily agreed to perform at its own cost 100 percent of the operation, maintenance, repair, replacement, and rehabilitation of the Project; and

WHEREAS, pursuant to 33 U.S.C. 701h, the Government is authorized to accept contributions by the City and apply those contributions to the Project; and

WHEREAS, the City has the authority and capability to furnish the cooperation hereinafter set forth and is willing to participate

in cost-sharing and financing in accordance with the terms of this Agreement;

NOW THEREFORE, the parties agree as follows:

ARTICLE I - DEFINITIONS AND GENERAL PROVISIONS

For purposes of this Agreement:

a. The term "Project" shall mean approximately 500 feet of bicycle trail connecting two ends of an existing bicycle trail including approximately 400 feet of raised timber trestle structure and approximately 100 feet of concrete-surfaced trail, as generally described in a report entitled "Feature Design Memorandum #4 with Integrated Environmental Assessment, Greenbelt Trail System - Lutheran Hospital Bicycle Trail Segment" prepared by the District Engineer, U.S. Army Engineer District, Rock Island, dated December, 1989, and approved by the Commander, North Central Division on July 31st, 1990.

b. The term "total project costs" shall mean all costs incurred by the City and the Government directly related to construction of the Project. Such costs shall include, but not necessarily be limited to, continuing planning and engineering costs incurred after October 1, 1985; costs of applicable engineering and design; actual construction costs; supervision and administration costs; costs of contract dispute settlements or awards; and the value of lands, easements, rights-of-way, utility and facility alterations or relocations, and dredged material disposal areas provided for the Project by the City, but shall not include any costs for betterments, operation, repair, maintenance, replacement, or rehabilitation.

c. The term "period of construction" shall mean the time from the advertisement of the first construction contract to the time of acceptance of the Project by the Contracting Officer.

d. The term "Contracting Officer" shall mean the U.S. Army District Engineer for the Rock Island District, or his designee.

e. The term "highway" shall mean any highway, thoroughfare, roadway, street, or other public road or way.

f. The term "relocations" shall mean alterations, modifications, lowering or raising in place, and/or new construction related to, but not limited to, existing: railroads, highways, bridges, railroad bridges and approaches thereto, pipelines, public utilities (such as municipal water and sanitary sewer lines, telephone lines, and storm drains), aerial utilities, cemeteries, and other facilities, structures, and improvements determined by the Government to be necessary for the construction, operation and maintenance of the Project.

g. The term "fiscal year" shall mean one fiscal year of the United States Government, unless otherwise specifically indicated. The Government fiscal year begins on October 1 and ends on September 30.

h. The term "involuntary acquisition" shall mean the acquisition of lands, easements, and rights-of-way by eminent domain.

i. The term "functional portion of the Project" shall mean a completed portion of the Project as determined by the Contracting Officer to be suitable for tender to the City to operate and maintain in advance of completion of construction of the entire Project.

ARTICLE II - OBLIGATIONS OF THE PARTIES

a. The Government, subject to and using funds provided by the City and appropriated by the Congress of the United States, shall expeditiously construct the Project (including relocations of railroad bridges and approaches thereto), applying those procedures usually followed or applied in Federal projects, pursuant to Federal laws, regulations, and policies. The City shall be afforded the opportunity to review and comment on all contracts, including relevant plans and specifications, prior to the issuance of invitations for bid. The City will be afforded the opportunity to review and comment on all modifications and change orders prior to the issuance to the contractor of a Notice to Proceed. The Government will consider the comments of the City, but award of contracts, modifications or change orders, and performance of all work on the Project (whether the work is performed under contract or by Government personnel), shall be exclusively within the control of the Government.

b. When the Government determines that the Project or a functional portion of the Project is complete, the Government shall turn the completed Project or functional portion over to the City, which shall accept the Project or functional portion and be solely responsible for operating, repairing, maintaining, replacing, and rehabilitating the Project or functional portion in accordance with Article VIII hereof.

c. As further specified in Article III hereof, the City shall provide all lands, easements, rights-of-way, and dredged material disposal areas, and perform all relocations (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for construction of the Project. At its sole discretion, the Government may perform relocations in cases where it appears that the City's contributions will exceed the maximum non-Federal cost share set out in Article VI.d.

d. If the value of the contributions provided under paragraph c. of this Article represents less than 50 percent of total project costs, the City shall provide, during the period of construction, an additional cash contribution in the amount necessary to make its total contribution equal to 50 percent of total project costs.

e. No Federal funds may be used to meet the City share of project costs under this Agreement unless the expenditure of such funds is expressly authorized by statute as verified in writing by the granting agency.

ARTICLE III - LANDS, FACILITIES, AND PUBLIC LAW 91-646 RELOCATION ASSISTANCE

a. The City shall furnish to the Government all lands, easements, and rights-of-way, including suitable borrow and dredged material disposal areas, as may be determined by the Government to be necessary for the construction, operation, and maintenance of the Project, and shall furnish to the Government evidence supporting the City's legal authority to grant rights-of-entry to such lands. The necessary lands, easements, and rights-of-way may be provided incrementally, but all lands, easements, and rights-of-way determined by the Government to be necessary for work to be performed under a construction contract must be furnished prior to the advertisement of the construction contract.

b. The City shall provide or pay to the Government the cost of providing all retaining dikes, wasteweirs, bulkheads, and embankments, including all monitoring features and stilling basins, that may be required at any dredged material disposal areas necessary for construction of the Project.

c. Upon notification from the Government, the City shall accomplish or arrange for accomplishment at no cost to the Government all relocations (excluding railroad bridges and approaches thereto) determined by the Government to be necessary for construction of the Project.

d. The City shall comply with the applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, Public Law 91-646, as amended by Title IV of the Surface Transportation and Uniform Relocation Assistance Act of 1987 (Public Law 100-17), and the Uniform Regulations contained in 49 C.F.R. Part 24, in acquiring lands, easements, and rights-of-way for construction and subsequent operation and maintenance of the Project, and inform all affected persons of applicable benefits, policies, and procedures in connection with said Act.

ARTICLE IV - VALUE OF LANDS AND FACILITIES

a. The value of the lands, easements, and rights-of-way to

be included in total project costs and credited towards the City's share of total project costs will be determined in accordance with the following procedures:

1. If the lands, easements, or rights-of-way are owned by the City as of the date the first construction contract for the Project is awarded, the credit shall be the fair market value of the interest at the time of such award. The fair market value shall be determined by an appraisal, to be obtained by the City, which has been prepared by a qualified appraiser who is acceptable to both the City and the Government. The appraisal shall be reviewed and approved by the Government.

2. If the lands, easements, or rights-of-way are to be acquired by the City after the date of award of the first construction contract for the Project, the credit shall be the fair market value of the interest at the time such interest is acquired. The fair market value shall be determined as specified in Article IV.a.1. of this Agreement. If the City pays an amount in excess of the appraised fair market value, it may be entitled to a credit for the excess if the City has secured prior written approval from the Government of its offer to purchase such interest.

3. If the City acquires more lands, easements, or rights-of-way than are necessary for project purposes, as determined by the Government, then only the value of such portions of those acquisitions as are necessary for project purposes shall be included in total project costs and credited towards the City's share.

4. Credit for lands, easements, and rights-of-way in the case of involuntary acquisitions which occur within a one-year period preceding the date this Agreement is signed or which occur after the date this Agreement is signed will be based on court awards, or on stipulated settlements that have received prior written approval of the Government.

5. Credit for lands, easements, or rights-of-way acquired by the City within a five-year period preceding the date this Agreement is signed, or at any time after this Agreement is signed, will also include reasonable incidental costs of acquiring the interest, e.g., closing and title costs, appraisal costs, survey costs, attorney's fees, plat maps, and mapping costs, as well as the actual amounts expended for payment of any Public Law 91-646 relocation assistance benefits provided in accordance with the obligations under this Agreement.

b. The costs of relocations which will be included in total project costs and credited towards the City's share of total project costs shall be that portion of the actual costs as set forth below, and approved by the Government:

1. Highways and Highway Bridges: Only that portion of the cost as would be necessary to construct substitute bridges and highways to the design standard that the State of Iowa would use in constructing a new bridge or highway under similar conditions of geography and traffic loads.

2. Utilities and Facilities (including railroads): Actual relocation costs, less depreciation, less salvage value, plus the cost of removal, less the cost of betterments. With respect to betterments, new materials shall not be used in any alteration or relocation if materials of value and usability equal to those in the existing facility are available or can be obtained as salvage from the existing facility or otherwise, unless the provision of new material is more economical. If, despite the availability of used material, new material is used, where the use of such new material represents an additional cost, such cost will not be included in total project costs.

ARTICLE V - CONSTRUCTION PHASING AND MANAGEMENT

a. To provide for consistent and effective communication between the City and the Government during the period of construction, the City and the Government shall appoint representatives to coordinate on scheduling, plans, specifications, modifications, contract costs, and other matters relating to construction of the Project. The City will be informed of any changes in cost estimates.

b. The representatives appointed above shall meet as necessary during the period of construction and shall make such recommendations as they deem warranted to the Contracting Officer.

c. The Contracting Officer shall consider the recommendations of the representatives in all matters relating to construction of the Project, but the Contracting Officer, having ultimate responsibility for construction of the Project, has complete discretion to accept, reject, or modify the recommendations.

ARTICLE VI - METHOD OF PAYMENT

a. The City shall provide, during the period of construction, cash payments required to meet its obligations under Article II of this Agreement. Total project costs are presently estimated to be \$152,850. In order to meet its cash payment requirements, the City must provide a cash contribution presently estimated to be \$74,675. The dollar amounts set forth in this Article are based upon the Government's best estimates which will reflect projection of costs, price level changes, and anticipated inflation. Such cost estimates are subject to adjustments based upon cost actually incurred and are not to be construed as the total financial responsibilities of the Government and the City.

b. The required cash contribution shall be provided as follows: At least sixty (60) calendar days prior to the award of the first construction contract, the Government shall notify the City of the City's estimated share of project costs, including its share of costs attributable to the Project incurred prior to the initiation of construction. Within thirty (30) calendar days thereafter, the City shall provide the Government the full amount of the required contribution by delivering a check payable to "FAO, USAED, ROCK ISLAND" to the Finance Officer representing the Government. In the event that total project costs are expected to exceed the estimate given at the outset of construction, the Government shall immediately notify the City of the additional contribution the City will be required to make to meet its share of the revised estimate. Within ten (10) calendar days thereafter, the City shall provide the Government the full amount of the additional required contribution.

c. The Government will draw on the funds provided by the City such sums as the Government deems necessary to cover contractual and in-house fiscal obligations attributable to the Project as they are incurred, as well as costs incurred by the Government prior to the initiation of construction.

d. Upon completion of the Project and resolution of all relevant claims and appeals, the Government shall compute the total project costs and tender to the City a final accounting of the City's share of total project costs. In the event the total contribution by the City is less than its minimum required share of total project costs, the City shall, no later than 90 calendar days after receipt of written notice, make a cash payment to the Government of whatever sum is required to meet its minimum required share of total project costs.

e. If the City's total contribution under this Agreement (including lands, easements, rights-of-way, and relocations, and dredged material disposal areas provided by the City) exceeds 50 percent of total project costs, the Government shall, subject to the availability of funds for that purpose, refund the excess to the City no later than 90 calendar days after the final accounting is complete.

ARTICLE VII - DISPUTES

Before any party to this Agreement may bring suit in any court concerning an issue relating to this Agreement, such party must first seek in good faith to resolve the issue through negotiation or other forms of non-binding alternative dispute resolution mutually acceptable to the parties.

ARTICLE VIII - OPERATION, MAINTENANCE, REPAIR, REPLACEMENT,
AND REHABILITATION

a. After the Government has turned the completed Project, or functional portion of the Project, over to the City, the City shall operate, maintain, repair, replace, and rehabilitate the completed Project, or functional portion of the Project, in accordance with regulations or directions prescribed by the Government.

b. The City hereby gives the Government a right to enter, at reasonable times and in a reasonable manner, upon land which it owns or controls for access to the Project for the purpose of inspection, and, if necessary, for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. If an inspection shows that the City for any reason is failing to fulfill its obligations under this Agreement without receiving prior written approval from the Government, the Government will send a written notice to the City. If the City persists in such failure for 30 calendar days after receipt of the notice, then the Government shall have a right to enter, at reasonable times and in a reasonable manner, upon lands the City owns or controls for access to the Project for the purpose of completing, operating, maintaining, repairing, replacing, or rehabilitating the Project. No completion, operation, maintenance, repair, replacement, or rehabilitation by the Government shall operate to relieve the City of responsibility to meet its obligations as set forth in this Agreement, or to preclude the Government from pursuing any other remedy at law or equity to assure faithful performance pursuant to this Agreement.

ARTICLE IX - RELEASE OF CLAIMS

The City shall hold and save the Government free from all damages arising from the construction, operation, and maintenance of the project, except for damages due to the fault or negligence of the Government or its contractors.

ARTICLE X - MAINTENANCE OF RECORDS

The Government and the City shall keep books, records, documents, and other evidence pertaining to costs and expenses incurred pursuant to this Agreement to the extent and in such detail as will properly reflect total project costs. The Government and the City shall maintain such books, records, documents, and other evidence for a minimum of three years after completion of construction of the Project and resolution of all relevant claims arising therefrom, and shall make available at their offices at reasonable times, such books, records, documents, and other evidence for inspection and audit by authorized representatives of the parties to this Agreement.

ARTICLE XI - GOVERNMENT AUDIT

The Government shall conduct an audit when appropriate of the City's records for the Project to ascertain the allowability, reasonableness, and allocability of its costs for inclusion as credit against the non-Federal share of project costs.

ARTICLE XII - FEDERAL AND STATE LAWS

In acting under its rights and obligations hereunder, the City agrees to comply with all applicable Federal and State laws and regulations, including Section 601 of Title VI of the Civil Rights Act of 1964, Public Law 88-352, and Department of Defense Directive 5500.11 issued pursuant thereto and published in Part 300 of Title 32, Code of Federal Regulations, as well as Army Regulation 600-7, entitled "Non-discrimination on the Basis of Handicap in Programs and Activities Assisted or Conducted by the Department of the Army".

ARTICLE XIII - RELATIONSHIP OF PARTIES

The parties to this Agreement act in an independent capacity in the performance of their respective functions under this Agreement, and neither party is to be considered the officer, agent, or employee of the other.

ARTICLE XIV - OFFICIALS NOT TO BENEFIT

No member of or delegate to the Congress, or resident commissioner, shall be admitted to any share or part of this Agreement, or to any benefit that may arise therefrom.

ARTICLE XV - COVENANT AGAINST CONTINGENT FEES

The City warrants that no person or selling agency has been employed or retained to solicit or secure this Agreement upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the City for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this Agreement without liability, or, in its discretion, to add to the Agreement or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

ARTICLE XVI - TERMINATION OR SUSPENSION

a. If at any time the City fails to make the payments required under this Agreement, the Secretary of the Army shall terminate or suspend work on the Project until the City is no longer in arrears, unless the Secretary of the Army determines that continuation of work on the Project is in the interest of the

United States or is necessary in order to satisfy agreements with any other non-Federal interests in connection with the Project. Any delinquent payment shall be charged interest at a rate, to be determined by the Secretary of the Treasury, equal to 150 per centum of the average bond equivalent rate of the 13-week Treasury bills auctioned immediately prior to the date on which such payment became delinquent, or auctioned immediately prior to the beginning of each additional 3-month period if the period of delinquency exceeds 3 months.

b. If the Government fails to receive annual appropriations for the Project in amounts sufficient to meet project expenditures for the then-current or upcoming fiscal year, the Government shall so notify the City. After 60 calendar days either party may elect without penalty to terminate this Agreement pursuant to this Article or to defer future performance hereunder; however, deferral of future performance under this Agreement shall not affect existing obligations or relieve the parties of liability for any obligation previously incurred. In the event that either party elects to terminate this Agreement pursuant to this Article, both parties shall conclude their activities relating to the Project and proceed to a final accounting in accordance with Article VI of this Agreement. In the event that either party elects to defer future performance under this Agreement pursuant to this Article, such deferral shall remain in effect until such time as the Government receives sufficient appropriations or until either party elects to terminate this Agreement.

ARTICLE XVII - NOTICES

a. All notices, requests, demands, and other communications required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally, given by prepaid telegram, or mailed by first-class (postage pre-paid), registered, or certified mail, as follows:

If to the City of Des Moines:

Mayor John P. Dorrian
City Hall
East First and Locust
Des Moines, Iowa 50309

If to the Government:

District Engineer
U.S. Army Engineer District, Rock Island
Clock Tower Building, P.O. Box 2004
Rock Island, Illinois 61204-2004

b. A party may change the address to which such communications are to be directed by giving written notice to the

other party in the manner provided in this Article.

c. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at such time as it is personally delivered or seven calendar days after it is mailed, as the case may be.

ARTICLE XVIII - CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.

ARTICLE XIX - HAZARDOUS SUBSTANCES

a. After execution of this Agreement and upon direction by the Contracting Officer, the City shall perform, or cause to be performed, such environmental investigations as are determined necessary by the Government or the City to identify the existence and extent of any hazardous substances regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. 9601-9675, on lands necessary for Project construction, operation, and maintenance. All actual costs incurred by the City which are properly allowable and allocable to performance of any such environmental investigations shall be included in total project costs and cost-shared as a construction cost in accordance with Public Law 99-662.

b. In the event it is discovered through an environmental investigation or other means that any lands, easements, rights-of-way, or disposal areas to be acquired or provided for the Project contain any hazardous substances regulated under CERCLA, the City and the Government shall provide prompt notice to each other, and the City shall not proceed with the acquisition of lands, easements, rights-of-way, or disposal areas until mutually agreed.

c. The Government and the City, shall determine whether to initiate construction of the Project, or if already in construction, to continue with construction of the Project, or to terminate construction of the Project for the convenience of the Government in any case where hazardous substances regulated under CERCLA are found to exist on any lands necessary for the Project. Should the Government and the City determine to proceed or continue with construction after considering any liability that may arise under CERCLA, the City shall be responsible, as between the Government and the City, for any and all necessary clean up and response costs, to include the costs of any studies and investigations necessary to determine an appropriate response to the contamination. Such costs shall not be considered a part of total project costs as defined in this Agreement. In the event the City fails to provide any funds necessary to pay for clean up and

response costs or to otherwise discharge its responsibilities under this paragraph upon direction by the Government, the Government may either terminate or suspend work on the Project or proceed with further work as provided in Article XVI.

d. The City and the Government shall consult with each other under the Construction Phasing and Management Article of this Agreement to assure that responsible parties bear any necessary clean up and response costs as defined in CERCLA. Any decision made pursuant to paragraph c. of this Article shall not relieve any party from any liability that may arise under CERCLA.

e. The City shall operate, maintain, repair, replace, and rehabilitate the Project in a manner so that liability will not arise under CERCLA.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, which shall become effective upon the date it is signed by the Commander, Rock Island District.

THE DEPARTMENT OF THE ARMY

BY:



JOHN R. BROWN
Colonel, EN
Commanding

DATE: 28 March 1991

THE CITY OF DES MOINES, IOWA

BY:



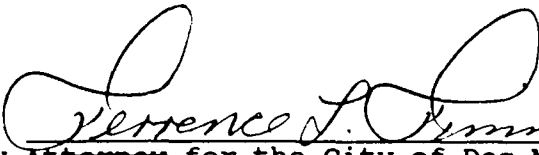
Mayor

DATE: MAR 4 1991

CERTIFICATE OF AUTHORITY

I, Terrance L. Timmins, do hereby certify that I am the principal legal officer of the City of Des Moines, Iowa, that the City is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement between the Department of the Army and the City of Des Moines, Iowa, in connection with development of the Lutheran Hospital Bicycle Trail at Des Moines, and to pay damages, if necessary, in the event of the failure to perform, in accordance with Section 221 of Public Law 91-611, as amended, and that the person who has executed this Agreement on behalf of the City of Des Moines, Iowa, has acted within his statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this 4th day of MARCH, 1991.


Terrance L. Timmins
City ~~Attorney~~ for the City of Des Moines, Iowa
Solicitor

ADDENDUM TO THE LOCAL COOPERATION AGREEMENT
BETWEEN
THE DEPARTMENT OF THE ARMY
AND
THE CITY OF DES MOINES
FOR
RECREATIONAL DEVELOPMENT AT
THE LUTHERAN HOSPITAL BICYCLE TRAIL SEGMENT

CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

THE CITY OF DES MOINES, IOWA

BY:


Mayor

DATE:

MAR 4 1991

APPENDIX B

SITE MANAGER'S PROJECT INSPECTION CHECKLIST

OPERATION AND MAINTENANCE MANUAL
DES MOINES RECREATIONAL RIVER AND GREENBELT
LUTHERAN HOSPITAL BICYCLE TRAIL SEGMENT
DES MOINES, IOWA

SITE MANAGER'S PROJECT INSPECTION CHECKLIST

Inspected by _____ Date _____

Type of Inspection (annual) (other)

1. PROJECT INSPECTION.

- | <u>Item</u> | <u>Comment</u> |
|--|----------------|
| a. <u>Concrete Bicycle Trail with Guardrail.</u> | |
| () Cracks, spalls, deterioration | |
| () Differential movement/settlement | |
| () Drainage | |
| () Joints | |
| () Hazards | |
| () Vertical/horizontal rail alignment | |
| () Loose posts/broken welds | |
| () Rust | |
| b. <u>Timber Bicycle Trail and Observation Deck.</u> | |
| () Fungus disintegration/surface breaks | |
| () Vermin | |
| () Wear/warping/weathering | |
| () Missing connections/fasteners | |
| () Deflection | |
| c. <u>Trail Abutments.</u> | |
| () Fungus disintegration/surface breaks | |
| () Vermin | |
| () Wear/warping/weathering | |
| () Missing connections/fasteners | |
| () Erosion | |
| () Movement | |
| () Storm drain inlet | |

OPERATION AND MAINTENANCE MANUAL
DES MOINES RECREATIONAL RIVER AND GREENBELT
LUTHERAN HOSPITAL BICYCLE TRAIL SEGMENT
DES MOINES, IOWA

SITE MANAGER'S PROJECT INSPECTION CHECKLIST (Cont'd)

<u>Item</u>	<u>Comment</u>
d. <u>Regraded Hillside.</u>	
() Subsurface drains	
() Cracks, scarps, sloughs, seepage	
() Trail alignment	

Site Manager

APPENDIX C

DISTRIBUTION LIST

DISTRIBUTION:

Mr. John Bryan (3)
Assistant City Manager
City Hall
400 East First Street
Des Moines, Iowa 50309-1891

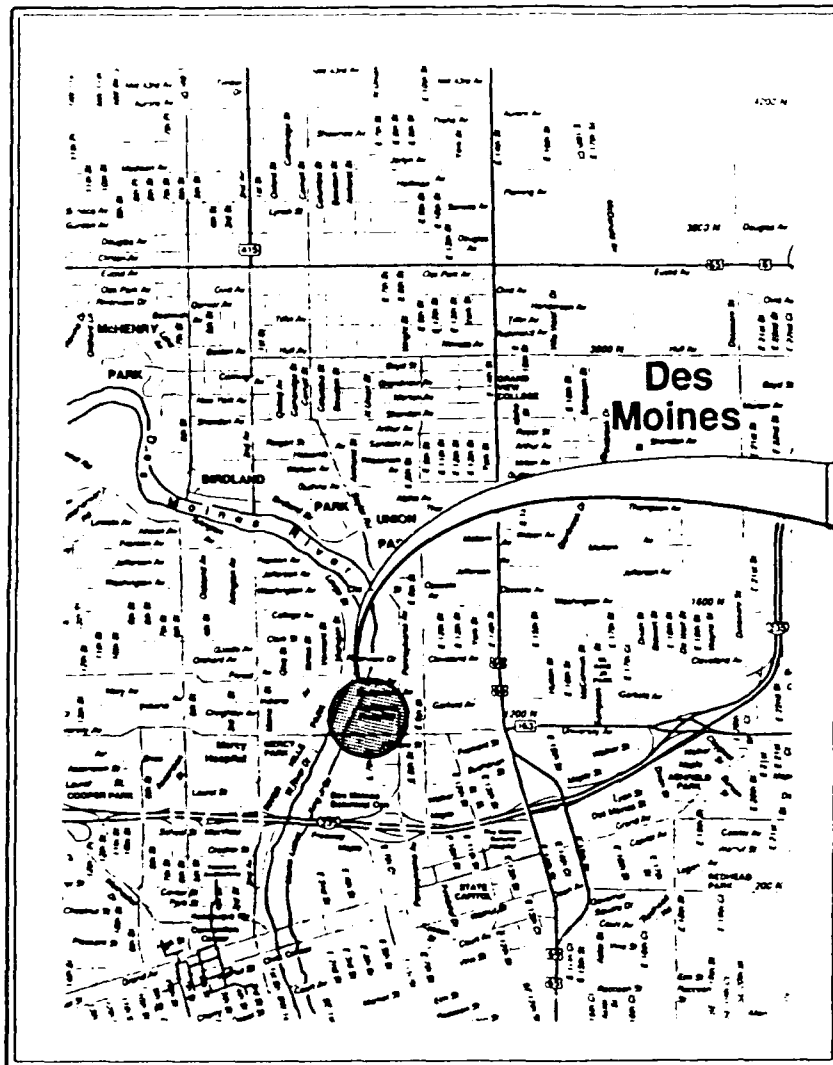
Division Engineer (2)
U.S. Army Engineer Division, North Central
ATTN: CENCDCO-O
111 North Canal Street, 12th Floor
Chicago, Illinois 60606-7205

District Engineer
U.S. Army Engineer District, Rock Island
Clock Tower Building - P.O. Box 2004
Rock Island, Illinois 61204-2004
ATTN: CENCRC-D

CENCRC-ED-DG
CENCRC-IM-C (3)
CENCRC-OD-S
CENCRC-OD-RS

1/ All addresses receive one copy of the document except where noted in parentheses

APPENDIX D
CONTRACT DRAWINGS



AREA OF WORK

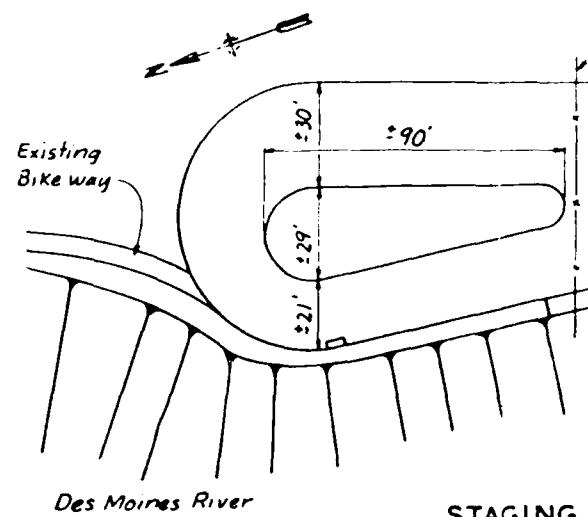
SHEET NO.	REF. NO.	
1	X-1	VICINITY
2	C-1	BORING
3	C-2	SITE PL
4	C-3	OBSERV
5	S-1	FOUNDAT
6	S-2	FRAMING

LOCATION PLAN

No Scale

Note:

An Additional Staging Area may be located under the University Avenue Bridge, East of the Existing Bikeway



STAGING
No Scale



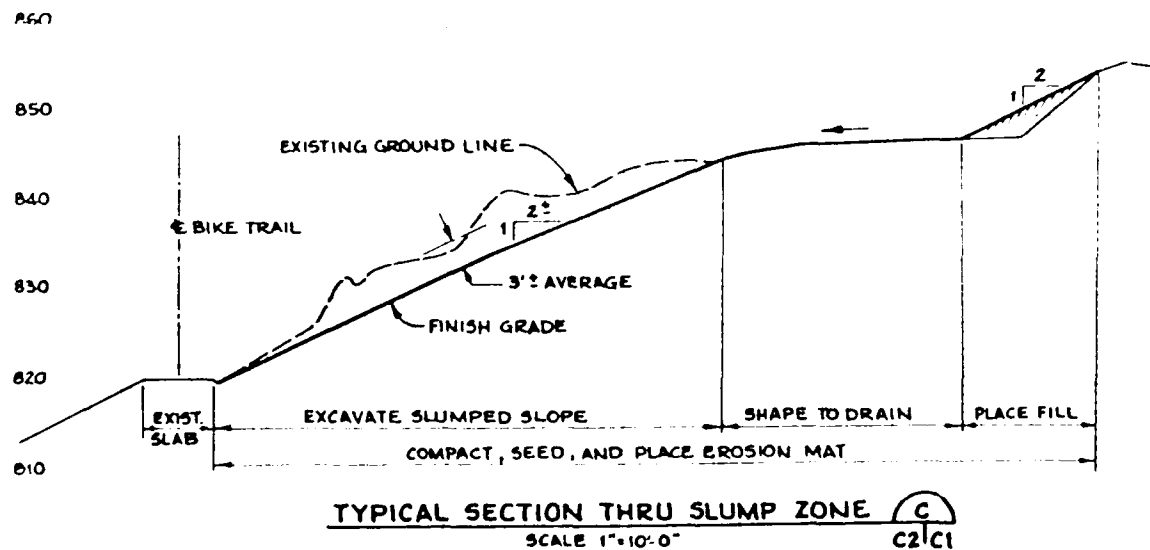
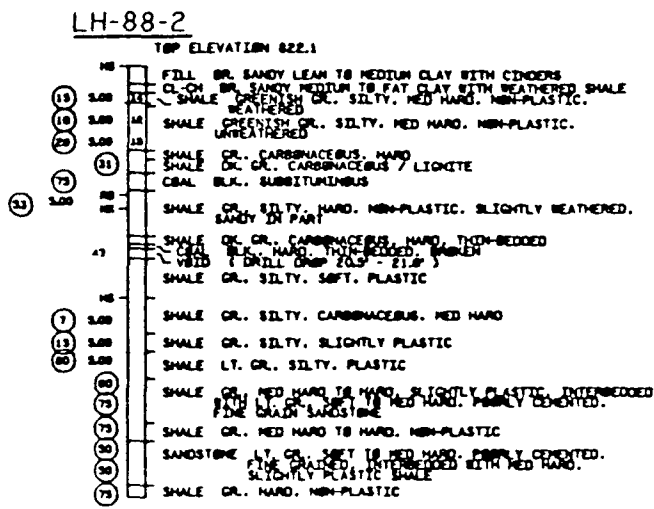
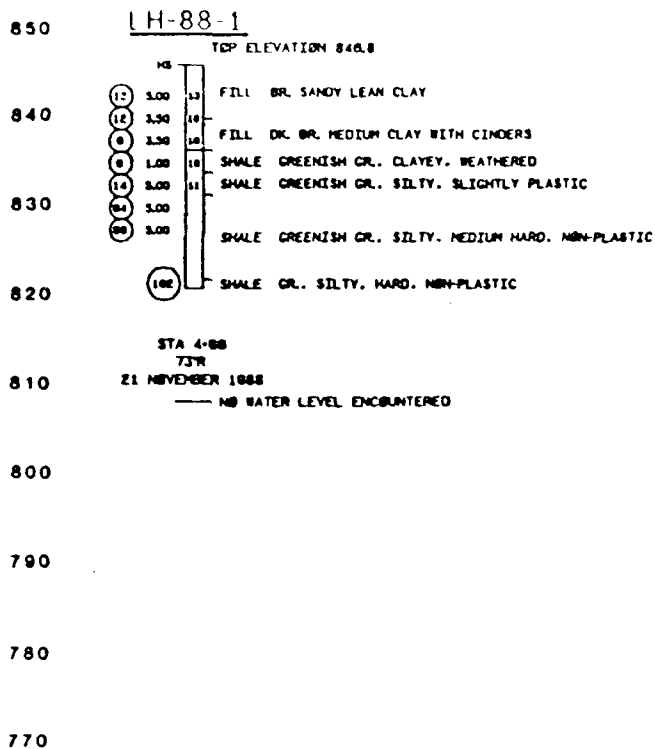
The Contractor may use the Cul-De-Sac North of this line as a staging area. Provide a barrier approved by the Contracting Officers Representative.



Prepared By: US ARMY FOREWATER DISTRICT, ROCK HAVEN
Submitted By: [Signature]
Chief, District: [Signature]
Chief, HYDRAULICS BR: N/A
Field: [Signature]
Chief, GEOTECHNICAL BR: S. M. [Signature]
Recommended By: [Signature]
Chief, INSTRUCTION BR: [Signature]
Approved By: [Signature]
For: [Signature]
Date: [Signature]

[illegible]

ELEVATION



NOTES

2 WATER SUR
WERE TAK
(REFER TO
PAGE 5).

EXISTING 8'-0" WIDE x 4" THICK
CONCRETE BIKE TRAIL.
REMOVAL AND REPLACEMENT
REQUIRED WITH 4 INCHES OF
PORTLAND CEMENT CONCRETE
ON 4 INCHES OF COMPACTED
AGGREGATE BASE COURSE.

EXISTING RETAINING WALL

ELEVATED TIMBER
BIKE TRAIL

EXISTING MANHOLE

PAVE WITH 4 INCHES OF PORTLAND
CEMENT CONCRETE ON 4 INCHES OF
COMPACTED AGGREGATE BASE

CONSTRUCT
68 LF OF NEW
STEEL
RAILING

STA. 10+00
Steel Rod
TBM EL. 829.6

CONSTRUCT
68 LF OF NEW
STEEL
RAILING

~~EXISTING 6' HIGH
CHAIN LINK BARRIER
TO BE REMOVED
BY CITY.~~

OBSERVATION
DECK
SEE SHEET C-5

BIKE TRAIL CENTERLINE AND TRAVERSE

CONTRACTOR WORK LIMITS

**SOUTH
ABUTMENT
SHEET 3-1**

REMOVE AND REPLACE
EXIST. INSIDE OF STAIRS

SITE PL

30
SCALE

ABUTMENT POST

2-6

2-6

2-8

7'-3"

1'-6"

6x6 POST SET IN CONCRETE. SEE SHEET 52

RAIL TERMINATION

UP-SLOPE RAIL EACH END

0 1 2 3 4 5
SCALE

GRADE TO MAINTAIN
EXISTING DITCH

2 STD PIPE RAILS
4 POSTS SPACE
POSTS 8' R.O.
CTRS. MAX. _____

6" - SOUTH PAVEMENT
(FLARE TO 1:6" @ EACH
END - SEE SITE PLAN

1:6" - NORTH PAVEMENT

4" CONC. SLAB REINFORCED
WITH 6-6-W14-W14
WWF ————— 27

4" GRANULAR BASE

10" ϕ HOLE FILL
WITH CONCRETE

SLAB AND HANDRAIL DETAIL

NO SCALE

(8)

BIL ELEVATION	
STATION	NO
6+10	5
6+42	
6+74	
7+06	
7+38	
7+70	
8+02	
8+34	
8+50	
THRU	
9+22	N

EL 823.93 SOUTHWEST CORNER OF UNIVERSITY AVE.
BRIDGE OVER THE DES MOINES RIVER, EASTBOUND
SIDE, "X" ON HANDRAIL CURB.

CONTOURS ARE SHOWN AT ONE FOOT
INTERVALS WITH ELEVATIONS
REFERRED TO M.S.L. 1929 DATUM.

WATER SURFACE AND SECTIONS
WERE TAKEN 8 FEBRUARY 1989.
(REFER TO SURVEY BOOK FC 89-10,
PAGE 5).

2

SLUMP ZONE
REQUIRES RE-GRADING
AND SEEDING

-FILL CONTOURS
(APPROXIMATE)

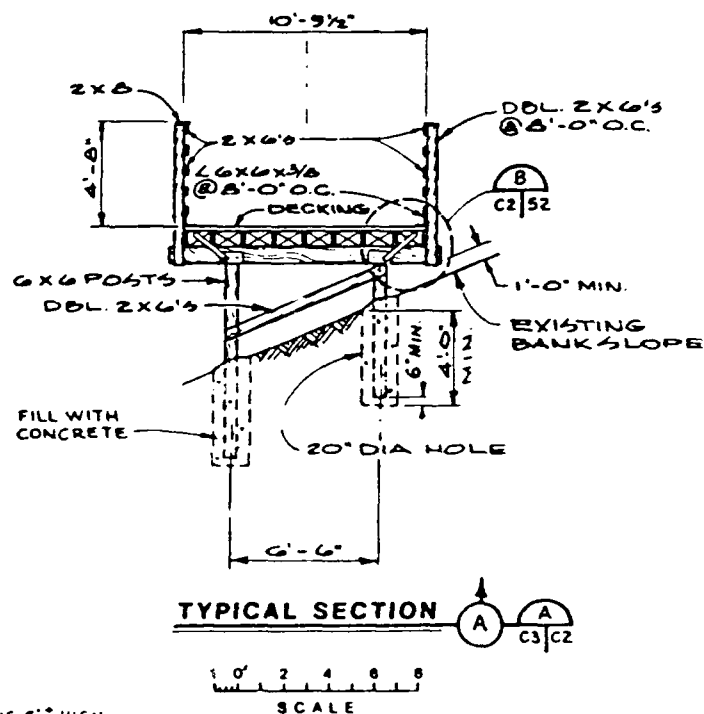
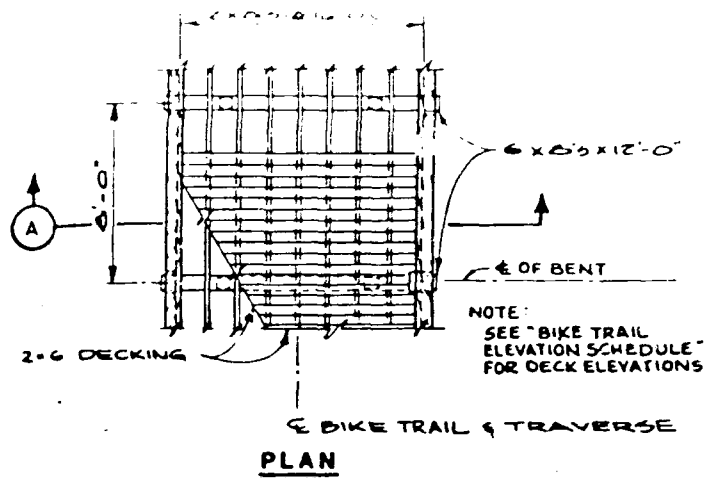
REMOVE AND REPLACE
EXIST. 140 LF OF STEEL RAILING

SITE PLAN



BIKE TRAIL ELEVATION SCHEDULE		
STATION	BENT NUMBER	DECK ELEVATION
6+10	SABUT	822.70
6+42	4	823.70
6+74	8	824.70
7+06	12	825.70
7+38	16	826.70
7+70	20	827.70
8+02	24	828.70
8+34	28	829.70
8+50	30	830.0
THRU	-	-
9+22	N. ABUT	830.0

- DRILL HOLE (SEE SHEET C-1)
- ⊙ OBSERVATION WELL
- ⊕ SLOPE INDICATOR
- ⊙ IBM TEMPORARY BENCH MARK



Revisions			
Symbol	Description	Date	Approved
2	STATION & DIMENSION REVISIONS	23 MAR 78	PAH
1.	MINOR REVISIONS	24 APR 78	PAH


Designed by: **K.E.W.**

Drawn by: **B.L.V.**

Checked by: **K.E.W.**

Reviewed by: **D.L.L.**

Approved by:
JOHN R. BROWN
COL., CORPS OF ENGINEERS



U.S. Army Corps
of Engineers

**DES MOINES RIVER
DES MOINES, IOWA**

**LUTHERAN HOSPITAL BIKE TR
SITE PLAN**

Scale: **AS SHOWN**

Date: **2 APR 19 77**

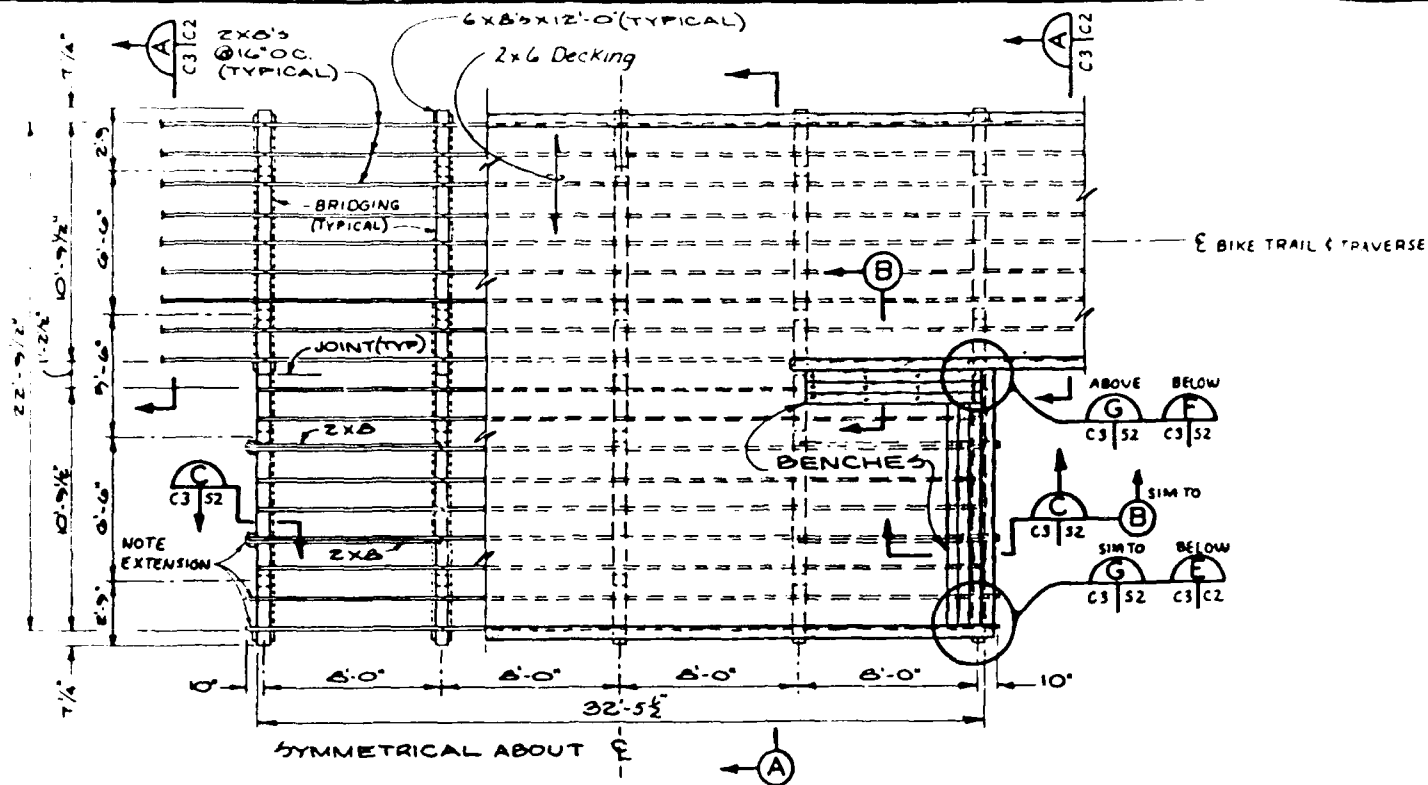
Drawing Code: **DRAG-1**

Sheet reference number:

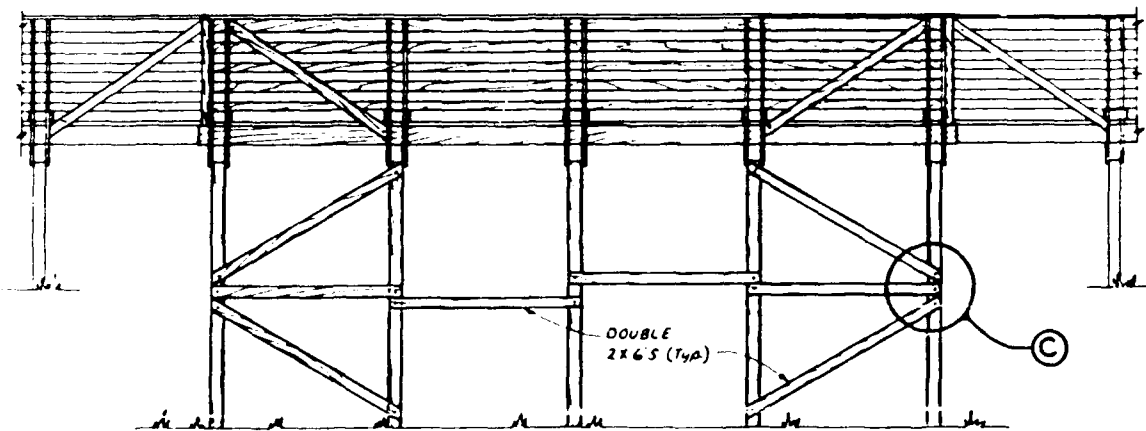
C-2

SOLICITATION NO.
DACW29-81-9-0079

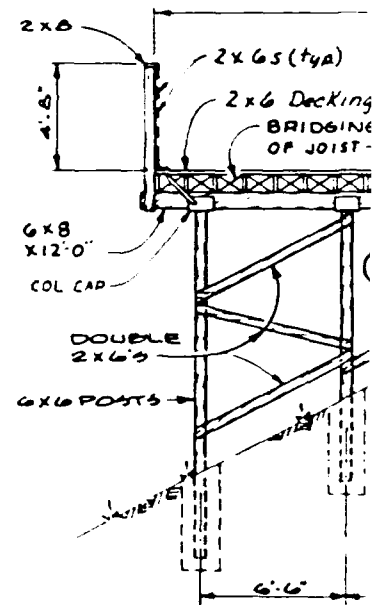
Sheet **- 3 -** of **- 6 -**



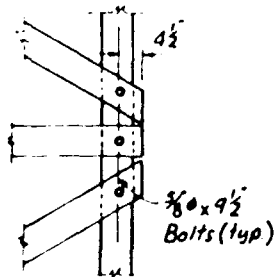
PLAN



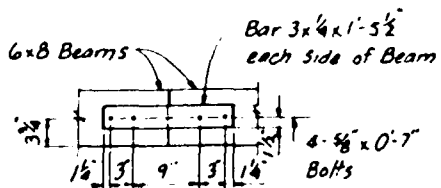
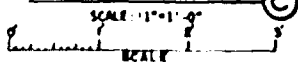
ELEVATION



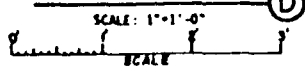
SEC



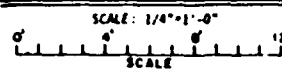
TYPICAL BRACING CONNECTION



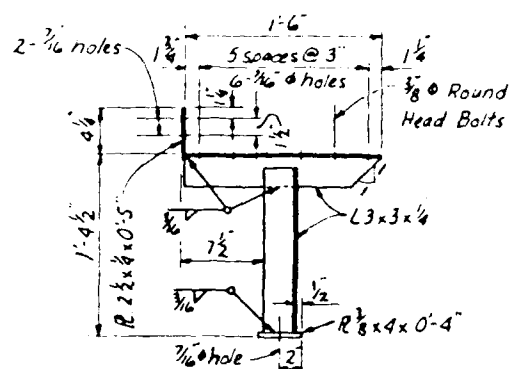
BEAM SPLICE



OBSERVATION DECK

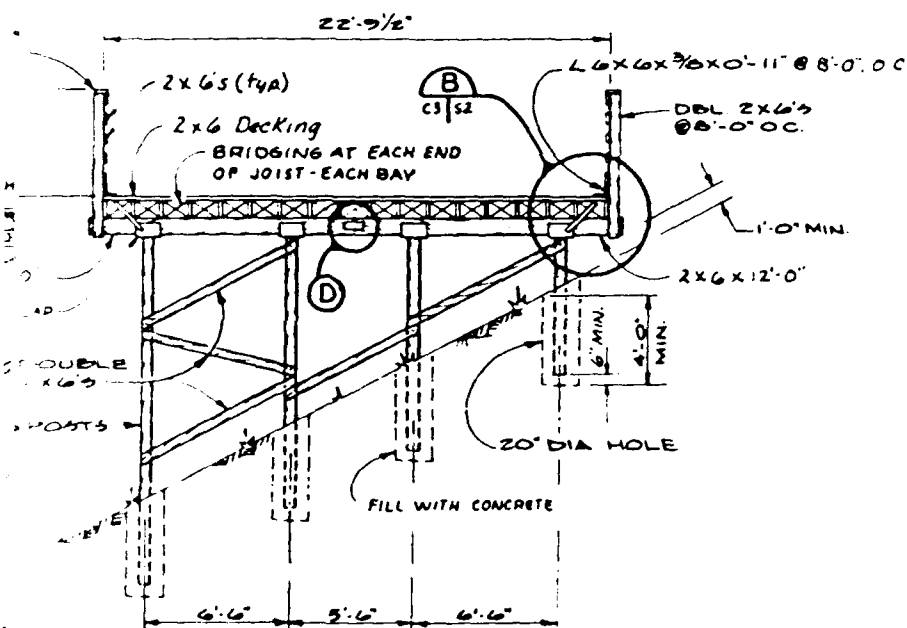
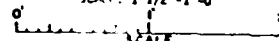


SCALE: $\frac{3}{4}" = 1' - 0"$

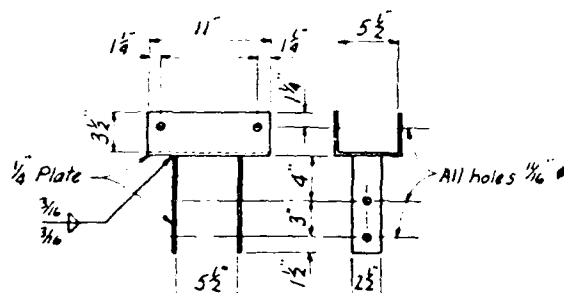


Make 16, Galv. ASTM A36 Steel

SCAF: 1 1/2" x 1" x 0"

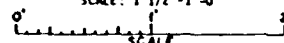


SECTION (A)



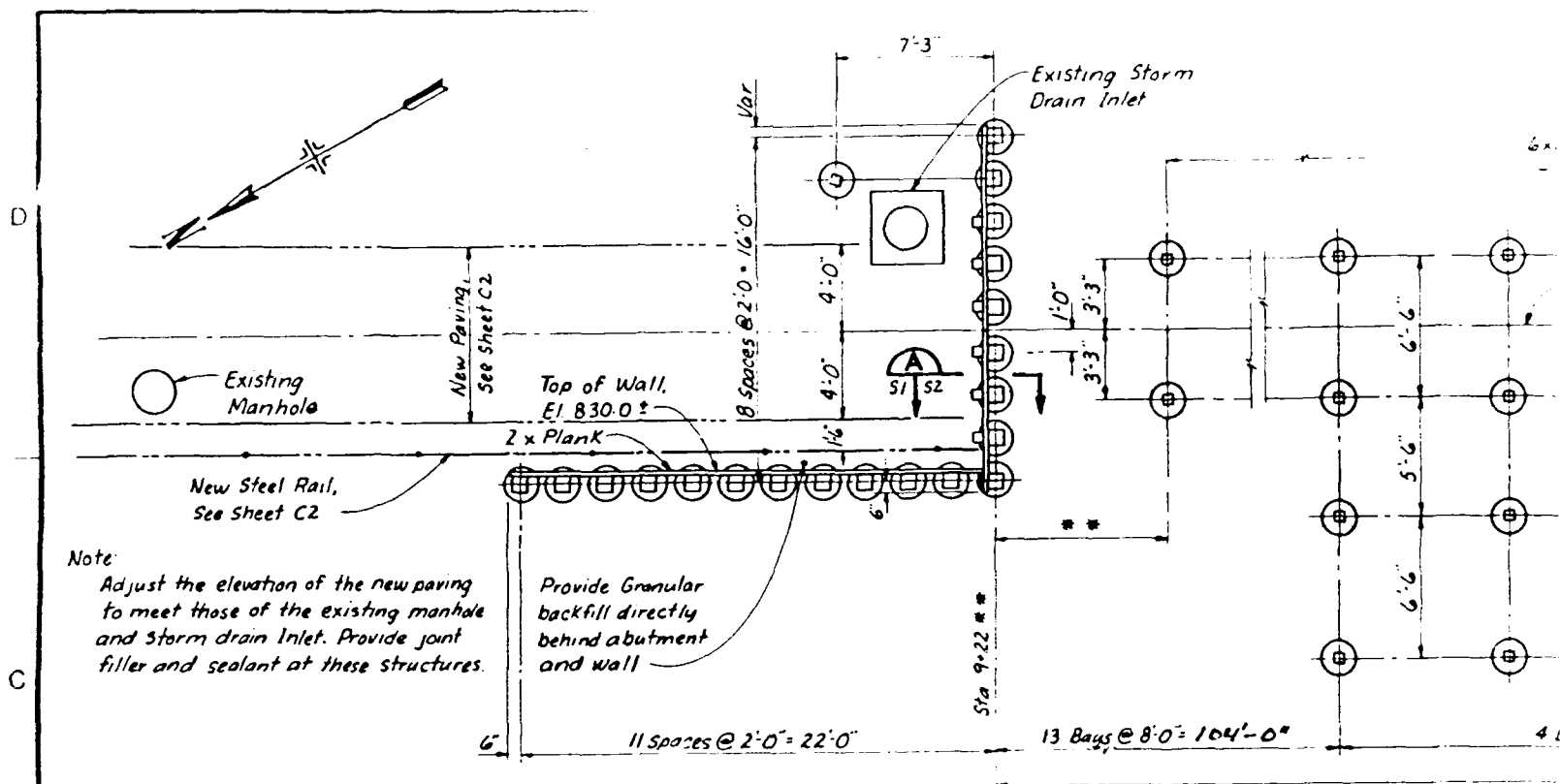
Make 86, ASTM A36 Steel Galv.

SCALE: 1 1/2"=1'-0"



Standard prefabricated column cap connectors of these same general dimensions may be provided.

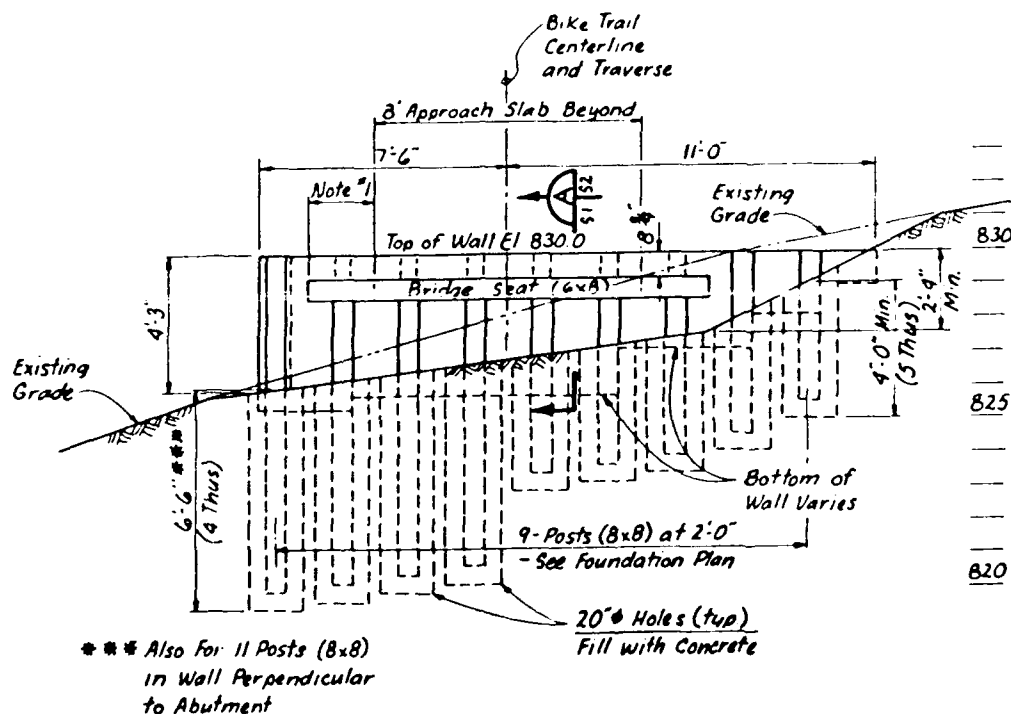
[illegible]



Note:
Adjust the elevation of the new paving
to meet those of the existing manhole
and storm drain inlet. Provide joint
filler and sealant at these structures.

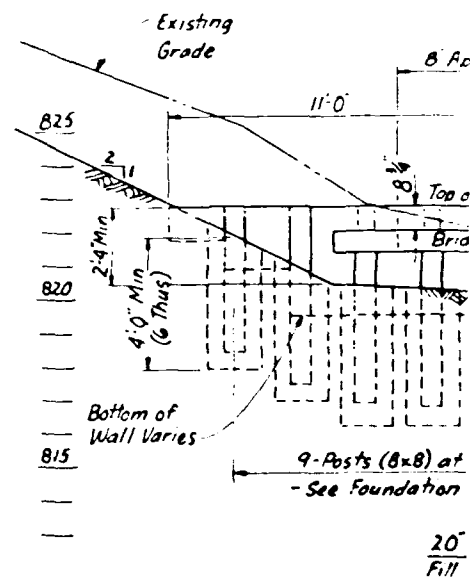
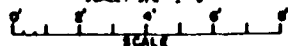
Provide Granular backfill directly behind abutment and wall —

**** Determine any interference between the North Abutment, the Existing Storm Drain Inlet and Existing Draining Piping prior to drilling holes for abutment or wall posts. Adjust the abutment stationing and length of the first bay as required to maintain the proper stationing for the remainder of the bike trail**



NORTH ABUTMENT-LOOKING NORTH

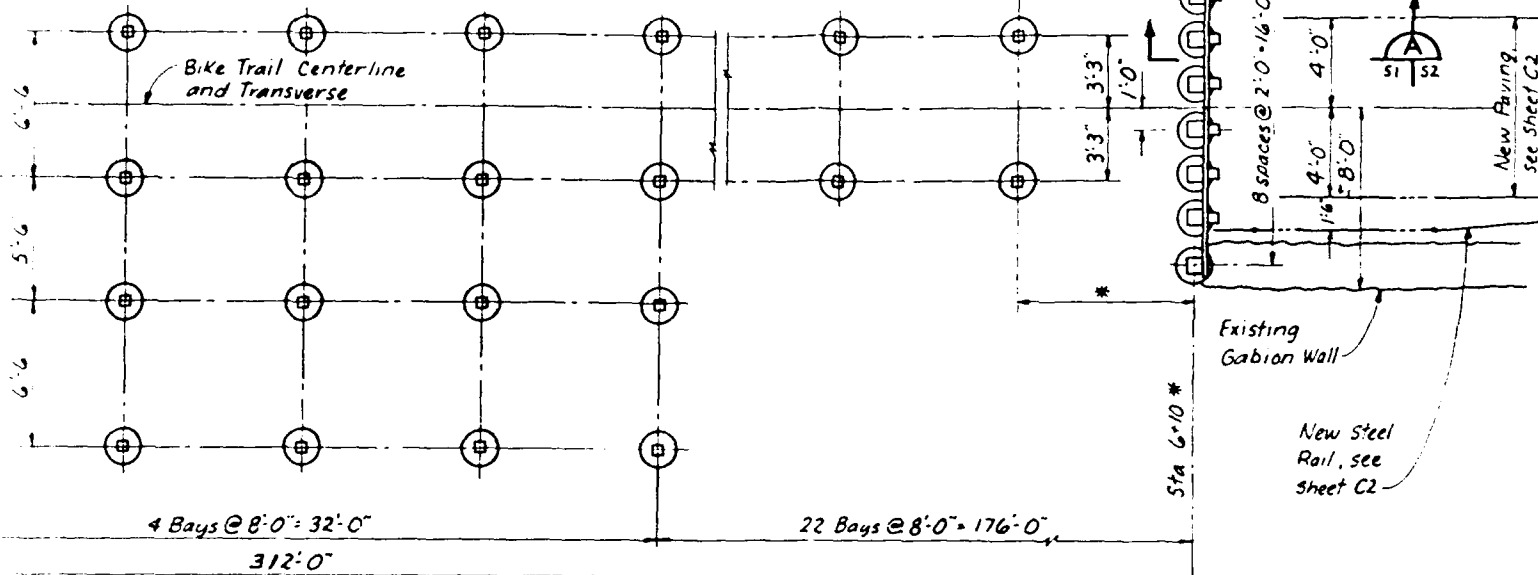
SCALE: 3/8"=1'-0"



SOUTH ABUT

20
Fill

6x6 Posts in 20" Dia Holes
- See Sheets C2 & C3



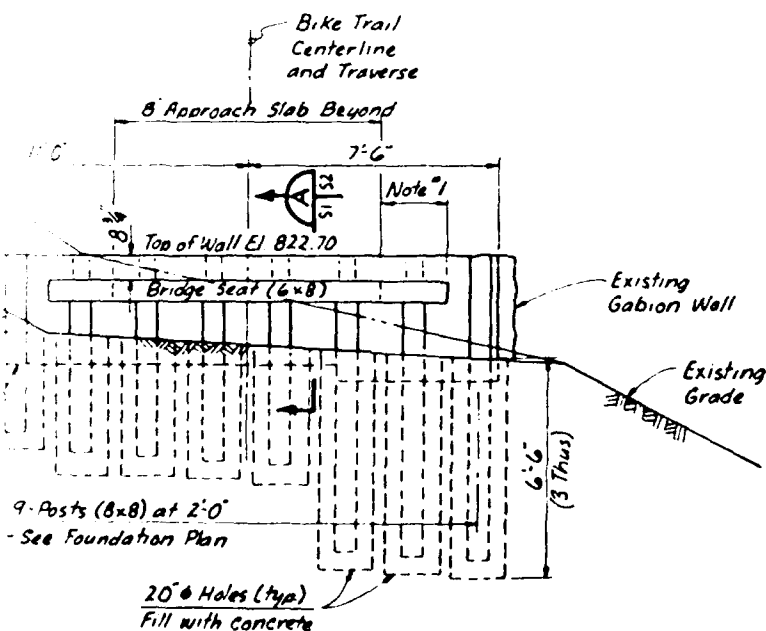
FOUNDATION PLAN

SCALE: 1/4" = 1'-0"
SCALE

* The South Abutment shall be as close to the existing Gabion Wall as possible. Adjust the abutment stationing and length of the first bay as required to maintain the proper stationing for the remainder of the bike trail.

Abutment Notes:

1. Dress 2'-0" of each end of Bridge seat to 4" wide (one side only) in order to make rail post connection. See Detail B on sheet S2.
2. Modify rail post connection to fit narrower beam. Provide detail.
3. Bike trail super structure (Joints, Decking and rails) not shown clearly.

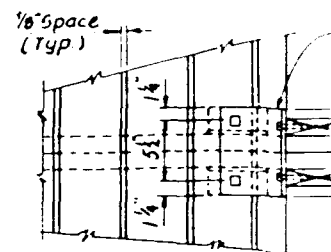


SOUTH ABUTMENT-LOOKING SOUTH

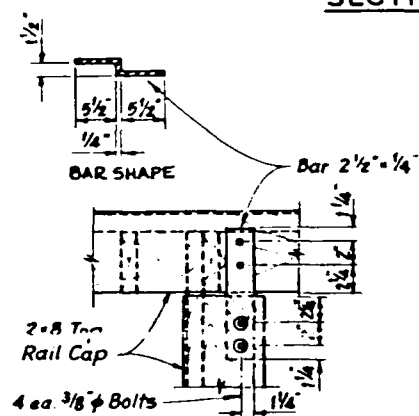
SCALE: 3/8" = 1'-0"
SCALE

Revisions			
Symbol	Descriptions	Date	Approved
1	Minor Revisions and added notes	11/14/81	J.E.D.

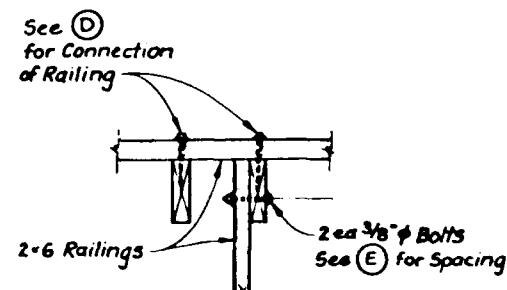
Designed by: K.E.W.		DEF MONIES RIVER DES MONIES, IOWA	
Drawn by: J.W.C.		LUTHERAN HOSPITAL BIKE TRAIL	
Checked by: K.E.W.		FOUNDATION PLAN AND DETAILS	
Reviewed by: D.L.L.		Scale: AS SHOWN	Sheet reference number: S-1
Approved by: JOHN R. BROWN COL., CORPS OF ENGINEERS		Date: 2 APRIL 1981 Drawing Code: DRG-1	EDUCATION NO. 06C028-01-S-0079 Sheet 5 of 6



RAILING DETAIL AT SPLICE (D)

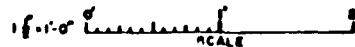


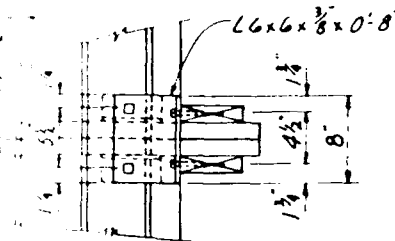
CONNECTION DETAIL 
C3 | S2



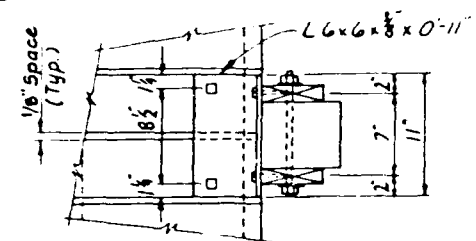
CONNECTION DETAIL F
C3152

SECTION THRU ABUTMENT 

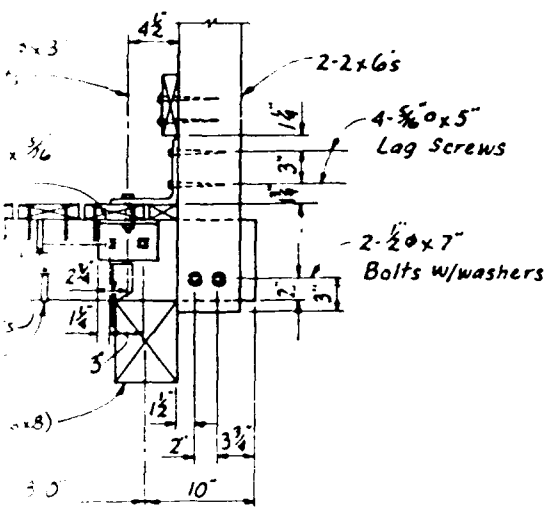




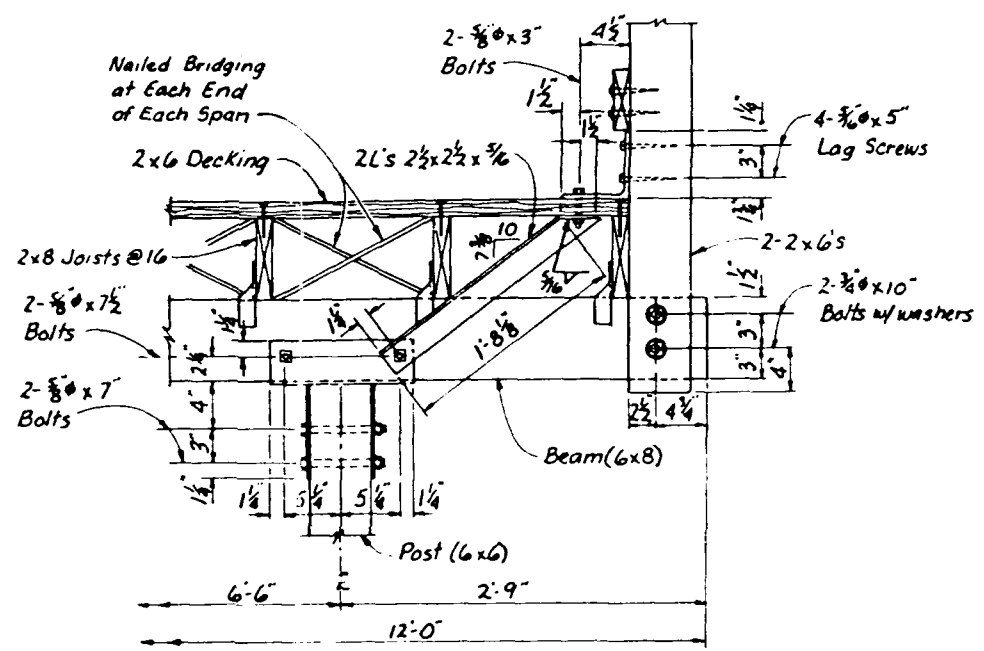
PLAN VIEW



PLAN VIEW



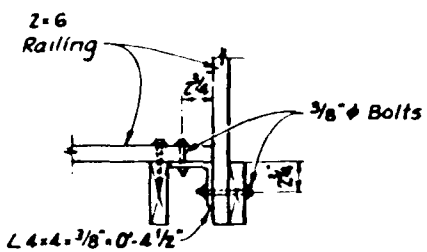
SECTION C C
C3/52



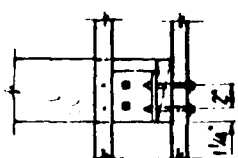
SECTION B B
C2/52 C3/52

2" = 1/4"

G
3/52



PLAN VIEW



ELEVATION

CONNECTION DETAIL E
C3/52

Revisions			
Symbol	Description	Date	Approved
1	MINOR REVISIONS		

Designed by: K.E.W. Drawn by: R.L.C. J.W.C. Checked by: K.E.W. Reviewed by: D.L.L. Approved by: JOHN R. BROWN COL., CORPS OF ENGINEERS		U.S. ARMY ENGINEER DISTRICT CORPS OF ENGINEERS ROCK ISLAND, ILLINOIS DES MOINES RIVER DES MOINES, IOWA LUTHERAN HOSPITAL BKE TRAIL FRAMING DETAILS Scale: 1 1/2" = 1'-0" Date: 2 APRIL 1981 Drawing Code: DRWG-1	
Sheet reference number: 3-2 SOLICITATION NO. 8-CW28-81-8-0076 Sheet 6 of 6			